



**REMARKS**

Applicants respectfully acknowledge receipt of the Office Action mailed June 16, 2006.

In the Office Action, the Examiner (1) rejected claims 1, 10, and 13 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt et al.* (U.S. Patent No. 6,459,130) in view of *Hori* (U.S. Patent No. 6,469,398) and *Minamio et al.* (U.S. Patent No. 6,900,524); and (2) rejected claims 11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori* and *Minamio*, and further in view of *Hurt et al.* (U.S. Pub. No. 2003/0007749).

No claim is amended herein. Claims 1 and 10-13 remain pending. Of these claims, claim 1 is independent.

Applicants traverse the rejections above and respectfully request reconsideration for at least the reasons set forth below.

**I. 35 U.S.C. § 103(a) REJECTION**

Claims 1, 10, and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori* and *Minamio*. Applicants respectfully disagree with the Examiner's arguments and conclusions and submit that independent claim 1 is patentably distinguishable over *Arndt*, *Hori*, and *Minamio*, at least for the reasons described below.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. §2143, 8th ed., February 2003.

*Arndt* discloses a semiconductor component including a semiconductor chip 1 and external connections 11 and 12, which project outside a parallelepipedal encapsulation 3. (*Arndt*, col. 2, ll. 46-50 and Figs. 1A-1C). As admitted by the Examiner, "Arndt does not show that the soldering terminals (11 and 12) do not extend beyond an outline of the encapsulation material because the terminals are bent inward toward the encapsulation material." (*Office Action*, p. 2, line 25 - p. 3, line 1). Thus, in order to cure the deficiencies of *Arndt*, the Examiner relies on *Hori* for its asserted disclosure of "soldering terminals (11 and 12) that do not extend beyond an outline of the encapsulation material (5)." (*Id.* at p. 3, ll. 2-4).

However, as further admitted by the Examiner, "Arndt and Hori show all of the elements of the claims except the grooves and wings in the base material to enhance anchorage." (*Id.* at p. 3, ll. 8-9). To cure the deficiencies of *Arndt* and *Hori*, the Examiner relies on *Minamio* and alleges that *Minamio* shows in Fig. 1 "grooves (19) and wings (next to grooves) formed in [a] metal frame/base member (13)." (*Id.* at p. 3, ll. 10-11).

*Minamio* discloses a semiconductor chip 12 mounted on a die pad portion 11 of a lead frame 9, which is supported by suspension leads 10. Outer lead portions 16 serve as external terminals and are arranged in a bottom face region of a sealing resin 15.

The outer lead portions 16 are formed to be continuous with respective inner lead portions 13, wherein the inner lead portions 13 include a plurality of grooves 19 formed in the surface. (*Minamio*, col. 7, ll. 23-56).

*Minamio*, however, fails to disclose a series of grooves and wings crafted in an electrically conductive frame to enhance anchorage and minimize an occurrence of delamination. Applicants note that in order to compensate for the lack of such grooves and wings, the die pad portion 11 is supported by the suspension leads 10. The grooves 19 merely enhance the anchorage of the inner and outer lead portions 13 and 16, respectively, which form the external or soldering terminals, not the lead frame 9 (emphasis added).

Additionally, even if *Minamio* properly could be considered to disclose grooves and wings formed in an electrically conductive frame, which Applicants do not necessarily concede, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine *Arndt*, *Hori*, and *Minamio* in a manner that would result in the claimed invention. Rather, the Examiner has used impermissible hindsight as motivation to combine *Arndt*, *Hori*, and *Minamio*. For example, neither *Hori* nor *Minamio* relate to optoelectronic semiconductor components. Optoelectronic semiconductor components are unique in that they require a transparent “window” for light transmission to or from the component. *Hori* discloses a semiconductor package with a vertical type MOS transistor, and *Minamio* teaches a resin molded semiconductor device. Neither semiconductor device includes a transparent window for light transmission.

Accordingly, with respect to independent claim 1, *Arndt*, *Hori*, and *Minamio* fail to teach or suggest the claimed combination, including, *inter alia*:

“a series of grooves and wings crafted in [an] electrically conductive frame to enhance anchorage and minimize an occurrence of de-lamination” (emphasis added).

The Examiner has therefore not met at least two of the essential criteria for establishing a *prima facie* case of obviousness, wherein “the prior art reference (or references when combined) must teach or suggest all the claim limitations, and there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention.” See M.P.E.P. §§ 2142, 2143, and 2143.03. Accordingly, independent claim 1 is patentable over *Arndt*, *Hori*, and *Minamio*. Applicants therefore request that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn and claim 1 be allowed.

Moreover, claims 10 and 13 are in condition for allowance at least due to their direct dependence from independent claim 1. In addition, at least some of the dependent claims may recite unique combinations that are neither disclosed nor suggested by the cited art, and therefore are separately patentable.

Applicants respectfully traverse the Examiner’s rejection of claims 11 and 12 under 35 U.S.C. § 103(a) as being unpatentable over *Arndt* in view of *Hori* and *Minamio*, and further in view of *Hurt*. The shortcomings of *Arndt*, *Hori*, and *Minamio* are discussed above.

With respect to *Hurt*, the Examiner alleges “*Hurt* shows (fig. 5) a lens structure is used in an optoelectronic package...” (*Office Action*, p. 4, ll. 7-9). Such teachings, even if present in *Hurt*, fail to teach or suggest, at least, “a series of grooves and wings crafted in [an] electrically conductive frame to enhance anchorage and minimize an occurrence of de-lamination,” as required by Applicants’ claim 1 (emphasis added). Thus, *Hurt* also fails to overcome the above noted shortcomings of *Arndt*, *Hori*, and *Minamio*, and claims 11 and 12 are allowable at least due to their dependence from independent claim 1.

## II. CONCLUSION

Applicants respectfully submit that independent claim 1 is in condition for allowance. In addition, claims 10-13 are in condition for allowance at least due to their dependence from independent claim 1.

The Office Action contains characterizations of the claims and the related art with which Applicants do not necessarily agree. Unless expressly noted otherwise, Applicants decline to subscribe to any statement or characterization in the Office Action.

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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